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## The RHODE ISLAND MEDICAL JOURNAL

VOL. XLI

NOVEMBER, 1958

NO. 11

#### **BLADDER NECK OBSTRUCTION IN CHILDREN\***

LT. EDWARD H. RAY, JR., MC USNR

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Congenital obstructive lesions of the urinary tract are now recognized as common, and the majority of these obstructions are located at the bladder neck. This obstructive lesion was first brought to the attention of clinicians in 1915 by Beer. Since that time it has been recognized with increasing frequency and during the past several years has received a good deal of attention in the urologic literature. However, since early recognition of vesical neck obstruction in children depends primarily on an alert pediatrician or family physician, more papers of this sort are probably needed in the general medical literature.

Since I have been in Newport, it has been my good fortune to be associated with a very capable group of pediatricians who have been responsible for initiating rewarding urologic investigations in many children whose complaints might easily have been overlooked.

#### Pathology

There are three different congenital lesions which result in vesical neck obstruction. Two of these lesions, prostatic urethral valves and congenital hypertrophy of the verumontanum, are found only in males. The third obstructive lesion is congenital contracture of the internal vesical orifice, which is equally distributed between the two sexes.

Congenital prostatic urethral valves are deep mucosal folds or redundancies, located in the posterior urethra, and are usually attached to the verumontanum at one end. These valves may be classified into three types according to their relation to the verumontanum. Cystoscopically, they may be observed as a diaphragm across the posterior urethra or as cusps ballooning into the urethra as the child urinates. When fluid flows through the urethra in a retrograde manner, this second type of valve often collapses and is difficult to observe endoscopically.

In congenital hypertrophy of the verumontanum there may be enlargement, two or more times the normal size, with complete filling of the entire posterior urethra. Burns reported a case in which the verumontanum was on a long pedicle and was found in the bladder where it produced obstruction by a ball and valve effect. On section the veru presents a normal, but hypertrophied structure, with occasional superficial inflammatory changes.

The most common of these obstructive lesions is contracture of the internal vesical orifice. Microscopic examination of tissue removed from the vesical neck in this condition reveals a dense fibrosis of the submucosa involving the entire circumference of the vesical outlet. There may or may not be associated muscular hypertrophy and there is frequently an infiltration of round cells. The severity of this contracture is variable. Sometimes it results in almost complete obstruction, and at other times a very low grade obstruction is produced.

The urinary tract, proximal to the vesical neck, may undergo radical alteration secondary to any of these three lesions. It is imperative that the resulting changes in the bladder and the upper urinary tract be understood, so that accurate diagnosis may be made and proper therapy instituted. These changes are hypertrophy, dilatation and eventual atrophy, in part or all of the urinary tract, proximal to the vesical neck. These changes vary according to the severity and duration of the obstruction, but are usually more rapid than corresponding changes occurring in adults. In moderately severe obstruction there is a rapid progressive dilatation of the bladder which follows a relatively short period during which the bladder is able to compensate for the obstruction by hypertrophy of the detrusor muscle. Vesico-ureteral reflux with resultant hydro-ureter, hydronephrosis and renal destruction is observed more frequently in children than in adults.

#### Incidence

As mentioned in the introduction, congenital vesical neck obstruction is a frequent occurrence. The exact incidence is unknown, but it has been recognized more frequently each year, and is now a common problem in any large urologic practice. The severity of the obstruction is variable. It may continued on next page

<sup>\*</sup>Presented at the Interim Meeting of the Rhode Island Medical Society, at the U.S. Naval Hospital, Newport, Rhode Island, October 8, 1958.

have destroyed already the upper urinary tract by the time of birth, or go unrecognized for nine or ten years, with no more than minor damage to the urinary tract.

The relative incidence of the three types has become clearer during the past few years. Congenital prostatic valves were incriminated in a high percentage of cases, by many of the early writers in this field; but it is now realized that prostatic valves and hypertrophy of the verumontanum occur infrequently. At least 95 per cent of these obstructive lesions are contractures of the vesical neck. Campbell states that hypertrophy of the veru was found in twenty of 10,712 boys examined postmortem; approximately one in 500. In Burns's series of 129 cases of vesical neck obstruction in children, prostatic valves were found in only three, while hypertrophy of the veru was present twice.

In our own small series of twelve cases, all have been due to contracture of the vesical neck. These twelve cases were selected from fifty-three cases of genito-urinary tract surgery in children, and comprise 23 per cent of the total. As related to our overall experience in 200 urologic operations, they constituted 6 per cent of the total.

#### Symptoms

The symptoms produced by vesical neck obstruction are subject to wide individual variation. They



FIGURE 1

Bilateral reflux and hydronephrosis demonstrated by a retrograde cystogram in a six-year-old white male whose only complaint was enuresis. may vary from the insignificant complaint of enuresis, to acute retention of urine. Acute retention is rare in children, but there is always some alteration of the normal voiding pattern. Straining to void, frequency and enuresis or nocturia are probably the earliest symptoms and should always be investigated. Although enuresis is frequently caused by an emotional problem or is a complication of spina bifida, it may be the only symptom of organic disease of the urinary tract.

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When enuresis is accompanied by daytime frequency or wetting, it is more significant. Dribbling and overflow incontinence are symptoms seen in advanced obstructive disease. In infants, crying before or during micturition is often significant. Abdominal pain has received scant notice in the literature as a symptom of this disorder, but it was a prominent complaint in most of the children I have treated for vesical neck obstruction; eight of the twelve children treated here for vesical neck obstruction had significant abdominal pain; in five it was the chief complaint. Hematuria is an uncommon symptom which occurs secondary to straining or infection. Signs of renal insufficiency, with or without gastrointestinal symptoms, may be the presenting picture and occasionally, a child in



FIGURE 2

Retrograde cystogram on eight-year-old colored male following second episode of urinary tract infection. Massive reflux into hydronephrotic and nonfunctioning right kidney. Left kidney functioning and hydronephrotic but protected from reflux by concurrent obstruction at the ureterovesical junction.

coma due to uremia, will be brought to the doctor. Frequently, a complication of the obstruction presents more outstanding symptoms than those produced directly by the obstruction. This is true of urinary tract infection which fortunately, occurs in about 75 per cent of children with vesical neck obstruction, thus drawing attention to the underlying disease. Because urinary tract infection is frequently a complication of some serious urinary tract pathology, recurrent or persistent urinary tract infection is generally considered to be an indication for urologic evaluation. However, in my own practice, I feel that the first urinary tract infection in a child is an adequate reason for urologic investigation.

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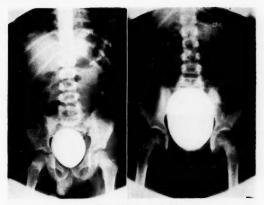
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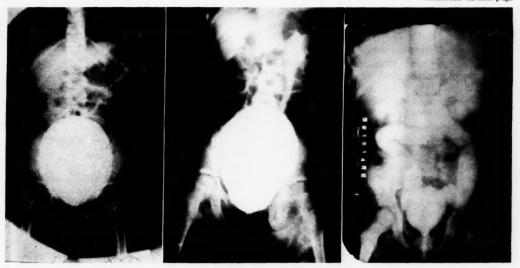
#### Diagnosis

The diagnosis of vesical neck obstruction can usually be made without difficulty. The most valuable aid to the diagnosis of this condition is a retrograde cystogram. The cystogram is made by filling the bladder by gravity with a radio-opaque contrast medium. This is easily done in children four to five years of age or older. In infants and younger children a retrograde cystogram may be made following the administration of rectal pentothal. General anesthesia should never be employed, as it allows undue relaxation of the bladder, and the contrast medium should never be injected into the bladder under pressure. A normal cystogram is smooth, round or ovoid, and does not extend above the iliac crest. As Rothfield and Epstein have pointed out, the normal bladder may enlarge out of the true pelvis. Campbell gives the following normal blad-



FIGURES 3a and 3b Normal Retrograde Cystograms

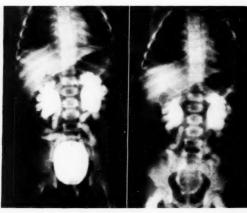
der capacities: at two years 25 to 35 cc; at six years 75-100 cc; at ten years 100 to 150 cc. When the bladder is filled by gravity, the capacities are usually one-third again as large. If there is bladder neck obstruction, the retrograde cystogram reveals an enlarged bladder, vesico-ureteral reflux, or both. Diverticula or cellules are very seldom seen in children. The vesico-ureteral reflux is usually bilateral, but may be unilateral. I have seen only one child with vesical neck obstruction who had a normal cystogram. This nine-and-one-half-year-old female child has had repeated urinary tract infections over the past five years, and had been treated with urethral dilatation. When I first saw her she was taking chloramphenicol, and had taken it continucontinued on next page



FIGURES 4a, 4b, 4c

a. Enlarged bladder in child with bladder neck obstruction. b. Enlarged bladder and unilateral vesico-ureteral reflux. c. Bilateral reflux in an infant who was seen in acute retention during first year of life.

ously for the past two months. In spite of this, her urine was loaded with pus and bacteria. Her urinary tract was radiographically normal, but there were between  $1\frac{1}{2}$  and 3 ounces of residual urine. Panendoscopy revealed a tight vesical neck contracture and trabeculation of the bladder. At operation the internal vesical orifice was small and fibrotic.



FIGURES 5a and 5b

a. Bilateral reflux on retrograde cystogram. b. Fifteenminute trap film following cystogram revealing inadequacy of bladder drainage in this child.

It is important to check for residual urine; residual urine of 15 cc or more calls for further evaluation. In young children determination of residual urine is often inaccurate. One method of testing for residual urine is to inject a small amount of ascendant Lipiadol into the bladder and obtain a KUB in twenty-four or forty-eight hours. Retention of this Lipiadol indicates residual urine. It is important to observe these children during micturition, for straining or reduction in the caliber and force of the urinary stream is easily detected. This is especially true in males. An excretory urogram provides information regarding function, possible dilatation, or associated congenital anomalies of the upper urinary tract. The diagnosis of vesical neck obstruction is usually apparent prior to panendoscopy, but this study should be performed in all cases, unless there is some contraindication. By panendoscopy the exact nature of the obstructive lesion is determined, and any obstructive lesion distal to the posterior urethra is revealed. Trabeculation is often observed, and with the panendoscope in place, a distinct ring at the vesical neck is frequently felt, on digital rectal examination. Retrograde pyelograms may be made if indicated.

#### Differential Diagnosis

The lesion most frequently confused with bladder neck obstruction is neuromuscular dysfunction of the bladder. An enlarged bladder or vesicoureteral reflux in a child with a definitive lesion of the central nervous system is usually on the basis of a neurogenic bladder. Urethral stricture and stenosis of the urethral meatus are obstructive lesions distal to the vesical neck, which must always be considered. They are usually discovered when catheterization or endoscopy is attempted.

#### Treatment

Congenital vesical neck obstruction is treated by the surgical removal of the obstructing tissue. In cases where advanced damage to the upper urinary tract has occurred, long-term drainage may be required, prior to the attack on the vesical neck.

Urethral dilatation has proved ineffectual. The vesical neck may be approached surgically by the transurethral or retropubic route. For congenital hypertrophy of the veru or for prostatic valves, transurethral resection is satisfactory in most instances; but there is a considerable difference of opinion as to the proper approach in handling vesical neck contracture. Transurethral resection is practical in older female children in whom an instrument of adequate caliber may be used without damaging the urethra. In infants and male children, the small instrument required for transurethral resection has marked limitations and permanent damage to the urethra may result from its use. The retropubic operation, on the other hand, is a relatively simple method of handling this problem with minimal complications and it provides unquestioned relief of the obstruction. Other advantages of the retropubic approach are, that drainage by cystostomy is instituted and may be maintained as long as is necessary. Also, indicated surgical procedures on the lower ureters may be carried out at the time the vesical neck resection is performed. It is our opinion that the retropubic operation is much the better method for handling all cases of vesical neck contracture in children.

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Reimplantation of the ureters for vesico-ureteral reflux has been advocated in the past several years and is very effective for this purpose. Nephrostomy drainage, nephrectomy, and various surgical procedures on the ureters may occasionally be indicated, depending upon the degree of damage to the upper urinary tract.

#### **SUMMARY**

Congenital vesical neck obstruction is a common disease produced by contracture of the internal vesical orifice, prostatic urethral valves, or hypertrophy of the verumontanum. The symptoms may be mild, even though pronounced damage to the urinary tract has occurred. Any abnormality of the voiding pattern or any history of a urinary tract infection in a child should arouse suspicion that obstructive uropathy may exist. The diagnosis of vesical neck obstruction is easily made. An excre-

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## ELECTROMYOGRAPHY—AID TO DIAGNOSIS OF AMYOTROPHIC LATERAL SCLEROSIS AND MOTOR ROOT COMPRESSION SYNDROMES\*

#### With Case Reports

HERMAN KABAT, M.D. AND ABRAHAM SALTZMAN, M.D.

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 $\mathbf{I}^{ ext{N}}$  The past decade, due to improved instrumentation, a number of reports have appeared describing a broad application of a physiologic measurement, electromyography, to assist the clinician in the study of neuro-muscular function in various disease states. A laboratory-testing method is thereby available which will provide specific information as to the function and intact state or pathology of the lower motor neuron, as the action potential is transmitted through the end-plate to the muscle fibers. If carefully and diligently applied, this method of testing may yield valuable data which may clarify what appear to be otherwise obscure neurological syndromes. This presentation will be restricted to patients whom the authors have recently seen and who presented diagnostic problems. We feel that a better understanding of this procedure and its applicability will be of interest.

A brief review of the basis for electromyographic measurement follows. Contraction of skeletal muscle is dependent on its innervation by the lower motor neuron. The nerve impulse is transmitted from the anterior horn cell through the motor nerve root and peripheral nerve to the muscle. Each anterior horn cell innervates approximately 150 muscle fibers which contract "all or none." If the anterior horn cell, root, or peripheral nerve is destroyed, the nerve fibers undergo Wallerian degeneration and the denervated muscle fibers atrophy. After an interval of about twenty-one days, the muscle fibers show active fibrillation, which is a more or less continuous twitching of the individual fibers, is involuntary, and cannot be seen with the naked eye. This is in contrast to the activity of the motor unit, in which 150 muscle fibers may be innervated by a single anterior horn cell to contract simultaneously on voluntary effort (the electrical

summation being recorded). Fibrillation is, therefore, a much smaller and shorter (1 to 2 msec.) contraction than a motor unit (5 to 10 msec.) and it is the detection of the fibrillation potentials which is the primary purpose of clinical electromyography. Unless nerve regeneration occurs, spontaneous involuntary fibrillation will continue indefinitely, until the denervated muscle fibers degenerate completely and are replaced by fibrous tissue. Fasciculation is a spontaneous visible twitching of motor units that occurs in degenerative disease of anterior horn cells. Fibrillation, in contrast, is the contraction of single muscle fibers and cannot be seen through the intact skin except possibly in the tongue musculature. If a motor nerve root is compressed, fibrillation will be evident only in the specific muscles of the myotome supplied by that motor nerve root. If the nerve regenerates, as nerve fibers grow down and re-innervate muscle fibers, fibrillation decreases and a few new motor units begin to function under voluntary control. These "nascent" motor units are abnormal in function for a considerable period of time and are polyphasic in appearance. They may be detected days or weeks before clinical evidence of nerve regeneration can be found.

Muscles weakened and atrophied by disuse show no fibrillation since innervation is not disturbed. In muscular dystrophy there is no fibrillation because the innervation is intact; however, the motor units have fewer and abnormal muscle fibers and the motor-unit potentials become progressively smaller.

Electromyography is the examination of the electrical potentials of skeletal muscles. A bipolar fine needle electrode is inserted into the muscle. The electrode is insulated except at the tip, so that a very small area of the muscle is being tested at one time. The electrical potentials of the muscle are tremendously amplified and led through a cathode ray oscilloscope for visual observation of the waves, which can also be permanently recorded on moving photographic film by means of a camera. In addition, the amplified potentials are led through a loud speaker for observation of the sound. Needle electrodes and a cathode ray oscilloscope are required for recording fibrillation potentials, which is the most important pathological finding in most pacontinued on next page

\*From the Department of Physical Medicine and Rehabilitation and the Department of Medicine of Miriam Hospital, Providence, Rhode Island.

tients referred for electromyography. Multiple areas of the muscle must be sampled in the search for fibrillation potentials. To minimize pain in this procedure, a preliminary intramuscular injection of demerol is given, and ethyl chloride spray may be used for local anesthesia for needle insertion. Hospitalization is not required.

In normal muscle in the relaxed state, no waves are seen and there is complete electrical silence. Slight contraction of the muscle results in appearance of motor-unit potentials. These are bi- or triphasic waves with a duration of 5-10 milliseconds, voltage of 100 to 3000 microvolts, and produce a characteristic thumping sound. Motor-unit potentials are under voluntary control.

Fibrillation potentials are much smaller than motor-unit potentials and are never found in normal muscle. Fibrillation potentials are mono- or diphasic, have a duration of 1 or 2 milliseconds and a voltage of 10 to 100 microvolts, and have a characteristic sharp clicking sound. They are usually irregular in frequency. Fibrillation potentials definitely indicate denervated muscle fibers. They are not under voluntary control.

In peripheral nerve lesions in the stage of regeneration, polyphasic potentials appear in considerable numbers. These appear only on voluntary effort and disappear with relaxation. They have up to 25 phases, a duration of 2 to 30 milliseconds, voltage of 100 to 1000 microvolts and have a characteristic rough crackling sound.

This type of examination requires intimate knowledge of anatomical landmarks and of muscle function, so that there is no doubt as to what level or muscle is being examined. It also takes considerable care to differentiate the fibrillation from a distant motor-unit potential. The position of the needle may have to be varied and repeated samplings taken at various depths with photographic control to obtain definite evidence of the presence of fibrillation. The audible sounds are of great value in running down abnormal findings as fibrillations are irregular in timing and are often heard before an electrode adjustment makes them more clearly evident to the eye and to the recording apparatus.

Our electromyograph is a three-channel instrument, with separate amplifier and oscilloscope for each channel. This allows for simultaneous observation and recording from three different needle electrodes in three muscles. The oscilloscope screens are small, so that all three can be observed at the same time. The sound can be switched on for any one channel.

#### Anterior Horn Disease

In damage or disease of anterior horn cells, such as poliomyelitis, progressive muscular atrophy, amyotrophic lateral sclerosis, syringomyelia, spinal cord tumor, trauma to the spinal cord or to cranial nerve nuclei, electromyography can be of value in diagnosis and prognosis. The characteristic pathological finding is fibrillation potentials. These may be localized to one or to several segments, as in syringomyelia and spinal cord tumor. Fibrillation potentials may be found in many segments, in a spotty, asymmetrical distribution, as in poliomyelitis. Or the distribution of fibrillation potentials may be very widespread and symmetrical, as in degenerative disease of anterior horn cells.

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We will present several cases of degenerative disease of anterior horn cells in which electromyography was of value in establishing the correct diagnosis:

#### Case 1

A forty-seven-year-old woman first noted weakness in the lower extremities and difficulty in walking in 1954. This has shown gradual steady progression. She was diagnosed as having multiple sclerosis in April, 1955, by her family physician and by a neurologist. There was a history of blurring of vision at times. The patient had suffered from cystitis and urinary urgency. In January, 1958, she was able to walk, but balance was very insecure with a cane. There was no nystagmus. Deep reflexes were hyperactive in all four extremities, ankle clonus sustained bilaterally, positive Babinski and finger flexor reflexes bilaterally. Sensation was intact, and there were no cerebellar signs. The upper extremities showed normal function. There was moderate spasticity in the lower extremities. There was moderate weakness and marked fatigability in both lower extremities and the trunk muscles. Weakness was greater in the right lower extremity, but there were no zero muscles. There was slight atrophy of muscles in the lower extremities, but this was considered consistent with the duration and degree of spastic paresis.

Because the neurological signs were limited to involvement of the corticospinal tracts and the course of the disease had apparently been steadily progressive, electromyography was performed.

Fibrillation potentials were recorded from muscles in all four extremities, indicating wide-spread disease of the anterior horn cells. The diagnosis was now clearly amyotrophic lateral sclerosis.

It is interesting to note that muscles in the upper extremities which were normal in function on clinical examination showed fibrillation potentials, as well as the paretic muscles in the lower extremities.

#### Case 2

A fifty-four-year-old woman with progressive weakness of the right lower extremity beginning in 1954. She was examined in January, 1956, at the New England Center Hospital, where weakness,

spasticity, increased knee and ankle jerks, clonus and positive Babinski were found in the right lower extremity. The left lower extremity and the upper extremities were normal. The right lower abdominal reflex fatigued rapidly. The only sensory finding was a slight decrease in position sense in the right big toe. A compressive lesion of the lower thoracic spinal cord was suspected, and she was hospitalized. Thoracic myelography was reported negative, and X rays of the spine were said to be negative. Final diagnosis at New England Center Hospital was "spinal cord lesion of long standing, most probably extrinsic, at cord level D9, 10."

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-S In May, 1956, she was seen by a neurosurgeon who found slight asymmetry of the pedicle size of T12 vertebra in the X ray, and recommended a laminectomy at T12, with removal of portions of T11 and L1. Following this procedure, she showed some improvement, but later became worse. Patient was referred for examination a year later having definite corticospinal findings in both lower extremities, but normal upper extremities. There was spasticity and paresis in both legs, greater on the right. There were no sensory changes or cerebellar signs. She was given a physical rehabilitation program with improvement.

However, after two months, the deep reflexes in the upper extremities were becoming hyperactive. The Hoffmann was positive bilaterally, and she reported recent slight weakness in the right hand. There was no definite muscular atrophy in the lower extremities or in the upper extremities. Weakness was noted in the intrinsic muscles of the right hand and in the wrist motions. Electromyography was then performed. Fibrillation potentials were recorded in all four extremities, including muscles in the upper extremities that showed normal function.

Since that time, the patient has continued under supervision following a prescribed rehabilitation program at home. She has noted fascicular twitching in the upper extremities at times. Slight weakness has appeared in intrinsic muscles of the left hand. The right hand and the lower extremities have shown further gradual loss of function. *Diagnosis:* Amyotrophic lateral sclerosis.

#### Case 3

A sixty-five-year-old man, right drop foot for past two months. Hyperactive deep reflexes, absent cremasteric and diminished abdominal reflexes. Weakness and atrophy of right ankle muscles. Left leg and both arms normal. Electromyography showed fibrillation potentials in all four extremities. *Diagnosis:* Amyotrophic lateral sclerosis.

#### Compression or Damage to Motor-Nerve Roots

Electromyography has been applied in various centers over a period of years with varying success as an aid in the diagnosis of nerve root compression or damage by herniated intervertebral disc. Marinacci, an enthusiastic leader in this field, in his book on Clinical Electromyography (1955), states that in definite nerve root compression syndromes, the electromyograph gives accurate localization in 80-90% of the cases. He reports 150 cases of lumbar laminectomy and seven cases of cervical laminectomy who had electromyography. Most of these cases had myelography as well.

Bonner and Schmidt, reviewed thirty unselected cases who had electromyography and laminectomy. In 24 out of 30 cases, 80%, pathologic change in the disc was found at the exact level detected by the electromyograph. Of the remaining six cases, electromyography was not completely accurate in four but was of definite value. In two cases, electromyography did not indicate the location of the disc.

The cardinal finding in pressure or damage to a motor-nerve root by a herniated disc or other pathology, is the appearance of fibrillation potentials localized in the muscles innervated by that concluded on next page

TABLE I

	Patient	Myelogram	Electromyogram Nerve Root Compression	Laminectomy
1.	T. A.	Negative	Left L5	Prolapsed intervertebral disc excised. Left L5 nerve root swollen.
2.	U. A.	Two-Negative	Left L4, L5, S1 Right S1	Prolapsed intervertebral disc excised. Lumbosacral disc, left and central.
3.	Е. В.	Negative	Right L5, S1	Prolapsed intervertebral disc excised. Right L4-5 disc prolapsed. Right L5 nerve root swollen.
4.	A. S.	Negative	Right L4	Prolapsed intervertebral disc excised. Right L4-5 disc.
5.	W. A.	Negative	Right S1	Prolapsed intervertebral disc excised. Right L4-5 disc.
6.	W. T.	Negative	Right L4, L5, S1 Left S1	Prolapsed intervertebral disc excised. Right lumbosacral disc. Right S1 nerve root swollen.
7.	B. G.	Two-Negative	Left S1	Prolapsed intervertebral disc excised. Left lumbosacral disc. Left S1 nerve root swollen.

nerve root. An important point is that the motornerve root supplies nerve fibers to the posterior as well as the anterior division of the spinal nerve, so that fibrillation potentials denoting denervated muscle fibers are found in the corresponding erector spinae muscles, as well as in the muscles of the extremity, of the same myotome. Injury or disease of plexus or peripheral nerve is not associated with fibrillation potentials in the erector spinae muscle, since the posterior division of the spinal nerve branches off as soon as the spinal nerve emerges. In patients with back pain, not only is it important to seek out the presence of fibrillation in both the erector spinae and in muscles of the extremity in the same myotome, but also the apparent degree of damage must be assessed to help the clinician.

Although the majority of patients with a clinical and laboratory impression of disc compression are treated conservatively, initially at least, it is possible to compare the value of the myelogram with the electromyogram objectively, only in those patients who have had surgical intervention. Recently we have had a surgical follow-up in seven patients who had negative myelograms and positive electromyograms (Table I). In two instances repeat myelograms were also negative. As seen in this table, the electromyogram correctly indicated the presence of a disc and the side of involvement. On two occasions, in which the other side was thought to be involved, a central disc was found in one.

#### CONCLUSIONS

The electromyogram is a physiological recording of the intact state or pathology of the lower motor neurons, as the action potential is transmitted to muscle fibers. A brief survey of the importance of the finding of fibrillation potentials in suspected amyotrophic lateral sclerosis and motor root compression syndromes is given along with an outline of the problems inherent in carrying out and interpreting such measurements. Electromyography may show fibrillation in all extremities in amyotrophic lateral sclerosis, even in the absence of muscular atrophy. In seven patients with negative myelograms in whom the electromyogram showed findings compatible with nerve root compression, a disc was found at laminectomy.

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## BLADDER NECK OBSTRUCTION IN CHILDREN concluded from page 616

tory urogram and retrograde cystogram serve as an excellent method to screen the urinary tract for possible pathology. The treatment of vesical neck obstruction is surgical, either by transurethral resection or by the retropubic operation.

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#### ON CLINICAL MEDICINE\*

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Today student and practitioner of medicine live in a fast-changing world of medicine, and do not breathe the stable and peaceful air in which, some forty years ago, I took my infant steps in medicine.

Then, clinical medicine seemed a simple and allembracing conception of our activities. To misuse some words of Tennyson, "Her court was pure. Her reign serene," and we allowed ourselves only the venial infidelities of occasional excursions into a simple and limited clinical pathology, into what was called Public Health and Forensic Medicine, with some comic interludes—as we then thoughtlessly regarded them—into vaccination (to which no less than six lectures were devoted) and mental diseases, to which we gave as little time as we could. But with a fine sense of where our true love was to be found, namely, at the bedside or in the outpatient clinic, we did not allow these philanderings to distract us unduly from our allegiance to her.

Some of us still remain singleheartedly devoted to her; but we are a pathetic, a diminishing and, if the truth is to be told, a dilapidating band of ancient lovers wearing our archaic graces with a faintly ridiculous air.

The sad fact today is that clinical medicine, as we see her in that cosmopolitan crush known as the curriculum, is a damsel in distress with scarce a champion, her rights disputed by a growing band of bold-faced competitors, each of whom is wooed and praised by a more oddly assorted band of suitors than ever sought the hand of Portia or Penelope. Their names are legion; industrial medicine, social medicine, psychological and psychosomatic medicine, geriatrics, and so on—bigger and better names than ever we knew of forty years ago. A new debutante is now with us. Her name is "adaptation"

\*The Schorstein lecture delivered at the London Hospital on October 19, 1950.

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stress" and if we can be cajoled into making an honest woman of her, she will, we may be sure, be the fertile mother of her own litter of specialists.

All these and more are—to change my metaphor—the new lamps for old with which persuasive magicians seek to seduce the medical Aladdin in his youth and innocence.

And if all this is tempting to us, what a brave new world it offers to the community. The citizen, from cradle to grave, and at the price of a weekly stamp, may hope to be accompanied on his harassed journey through life by relays of specialists: the obstetrician, the pædiatrician, soon of course the pubertician and the climacterician (subgroups of the species endocrinologist), and other experts in school and factory, until finally he declines, decrepit and exhausted, into the eager hands of the geriatrician and his sequent colleague the mortician: having enjoyed through all stages of the unequal contest a wide choice of psychiatric first-aid.

There is, I believe, a useful convention by which the pædiatrician passes us on at the age of 12 to his successor on the medical conveyor belt in our Welfare State. When, I ask my trembling contemporaries, does the hour strike at which we are passed on to the geriatrician to have our old bones trained for the Olympian games?

If my remarks do not seem to you sufficiently serious in form for the occasion, I humbly submit that they are not without substance; for the state of affairs I have sketched is surely the logical conclusion of much modern talk and planning on medical services and medical education.

Nearly a century ago a wise man said that the nonsense talked on education outweighed all the other nonsenses put together, and suspecting that this aphorism contains more than a little of the truth where we are concerned, it has seemed to me worth while to trace the growth of clinical medicine since the age of Sydenham, to see what has happened to it and what we are making of it in the medical education and practice of today. Is the clinical method still as important as Sydenham believed it to be?

Modern clinical medicine owes its birth to Syden-

ham who bridged the long gap between the ancient and the modern medical worlds by a return to the Hippocratic discipline. This rebirth was virtually contemporary with that of physiology. What, in the 17th century, Harvey did for physiology by the method of experiment, Sydenham did for medicine by the introduction of clinical study.

These two sources of inspiration and method in medicine have now joined to make a mighty stream; but what I am suggesting is that those of us who are, or who intend to be, practising doctors, the

clinical source is still the primary one.

As we trace the development of clinical medicine since its renaissance in the 17th century, we see the appearance of a succession of new insights, of new and often opposing schools of thought, each of them dominant for a time, perhaps in one country more than in another, but then coalescing with earlier and with later influences to swell the main stream of medicine as we see it today.

Each new insight, each new method of approach seems to have made the progress of knowledge swerve from the course upon which it was set, and this in virtue of the excess inherent in all new doctrines that have vitality and are expounded by men of force and genius; for there is an element of

excess in all greatness.

The pendulum of doctrine has never ceased to swing, and those whose efforts have disturbed, while they have sped, the steady march of progress, have always been persuaded that they were putting medicine on its true and final course at last. The illusion of dogmatic finality is no monopoly of the theologian, but is an ineradicable element in the human mind.

The impression of a changing and unstable equilibrium which the history of modern medicine gives us, should perhaps make us charitable to, and patient with, some of the current enthusiasms and apparent aberrations of thought in medicine. Each of these contains its grain of truth, but not the whole truth and partial truths, not recognised as such, can be very dangerous.

What I shall call partial truth, or partial thinking, is still our gravest danger in medicine, and, surrounded as we now are by a vast and growing mass of diverse information, it is scarcely surpris-

ing that this should be so.

Looked at from this point of view, the brief and incomplete story of clinical medicine in the past three hundred years which I now give, may have a lesson for us in our time.

\* \* \*

It was Sydenham who gave to clinical medicine the place of honour as a scientific discipline which, in my submission, it has never lost. He sought by the direct study of sick persons to write a natural history of diseases. Abandoning the theories and the abstract systems of his predecessors, he set out to describe visible signs and symptoms with accuracy and precision; to form notions of their combinations and sequences in illness of different kinds, and thus to form concepts of disease. He was the founder of nosography.

In this he displayed a fine clinical flair, an eye for the relevant and a capacity for discarding the irrelevant. Like all truly scientific observation, his

was selective.

The devastating epidemics of contagious diseases in the London of his day provided him with a rich material for study, and he succeeded in differentiating smallpox, cholera, plague, measles, scarlet fever, chorea, and that dignified malady of more spacious days, gout. His descriptions of smallpox and of gout are classics that can be read with profit

today.

Sydenham gave a great impulse to clinical medicine throughout Europe, but his work was not based upon any systematic knowledge or study of morbid anatomy, and his successors of the 18th century degenerated into mere classifiers, adding nothing new but creating an arid discipline of cataloguing and subdividing symptoms. The ultimate aim of medicine could never be the mere development of nosography: that is the differentiation and naming of a morbid state and its reference to a descriptive category. Changes in bodily function and structure, and factors of causation of disease were also necessary subjects of study and of knowledge if power over disease was to be achieved. Clinical study could not advance indefinitely in a vacuum, as it were, and without a parallel study of anatomical and physiological factors.

The necessary impulse which started medicine off once more in the stream of progress came from France, where in the early 19th century Bichat and Corvisart developed a systematic pathological anatomy, and the clinicopathological method was born.

It is easy now, and in some quarters popular, to decry what is called "deadhouse pathology," "scorning the base degrees by which we did ascend," but its study was an imperative condition of progress in medicine, and it remains a step which

we must still tread today.

Bichat advanced from the notion of diseased organs to that of diseased tissues. For example, he pointed out that the inflammation of a serous membrane gave rise to phenomena of two orders: those peculiar to all serous membranes, and those determined by the organ in which the serous membrane was situated and of which it was a part.

Thus, pleurisy, peritonitis, meningitis lead to general and to special or localising symptoms. Looked at today this notion of Bichat's seems an obvious and an easy one, and those who have never AL

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skirmished on the frontiers of ascertained knowledge in medicine, or any other branch of science, may not know how hard-won are these flashes of intuition, these fertile generalisations, how revealing when they are achieved, and how immensely satisfying to the earnest seeker after light in dark places. They come from what Trotter has spoken of as the unresting contemplation of the facts of observation: a contemplation we are apt to be far too busy nowadays to secure for ourselves.

Corvisart, following Bichat, undertook the precise study of pathological changes in tissues and organs and sought to correlate them with clinically observed disorders. This step made possible another one. Up to this time clinical observation had been essentially an ocular matter: the patient was looked at rather than systematically examined. For clinical examination as we know it, we owe the first steps to Laennec, who sought to discover in the living subject the changes in the organs hitherto seen only post mortem. His great weapon to this end was the method of auscultation by the stethoscope, and by means of it he was able to form some judgment of the actual changes present in heart and

lungs. I doubt if most of us now have the amazing skill with the stethoscope which the older physicians of my student days achieved, though I used sometimes to suspect that some of the ultimate refinements of auditory perception, with accounts of which some auscultatory artists used to regale us, were a little imaginative. Perhaps it is no longer essential that we should possess this degree of artistry; for other methods have come to lend us, and to lend us more easily and more certainly, some of the information gained by the stethoscope. But what the long bow was at Crecy, so was the stethoscope to our fathers in medicine, an essential weapon. Despise it not, nor suppose that the X-ray film is the universal and adequate substitute for its use. A stethoscope can go into any man's pocket, but we can't trail an X-ray plant and its operators round to every bedside.

Thus Laennec was able to construct a new series of clinicopathological pictures of disease, to distinguish the diverse pathological changes in the lungs, and in particular to form a unitary conception of pulmonary tuberculosis.

Those who followed him developed his methods, and gradually clinical medicine began to assume the form it still retains in essence, despite the vast accessions to knowledge that have ensued since his day.

From France, the new impulse spread. First, perhaps, to the Dublin school of medicine where Graves, Stokes, Adams, Cheyne, and Corrigan gave their names to new clinicopathological complexes, and thereafter to this country where Addison,

Bright, Parkinson, and others added further clarifications and nosological additions to knowledge.

It is perhaps difficult for us now at this time to realise what a revolution these few fertilising geniuses achieved in a few years. Out of the formless welter of chronic illness, fresh clinicopathological entities were isolated so that all could identify them and know them in their clinical and pathological aspects.

Even yet, however, clinical medicine was obviously incomplete, and became threatened by a stagnation of the same order that followed the impulse originally imparted to it by Sydenham, and the tendency to think of disease complexes as static concrete entities began to show itself. What was missing was the notion of ætiology, and the notion of process. There was no awareness of the fact that structural change must be preceded by functional change, and that disorders of function presupposed normal function. The notion of disease as disorder of normal function was necessary to the further evolution of medicine.

The new impulse to the introduction of physiological ideas in medicine may be said to have come from Germany from the middle third of the last century onward. There it gained strength and effected yet another revolution in medicine. Even here, perhaps, the germinal idea came from France, and from the physiologist Magendie, who explicitly refused to accept a true distinction between physiology and pathology, and emphasised that postmortem findings of themselves could not account for all the clinically observed phenomena.

Nevertheless, it was really in Germany that physiological medicine, as its exponents proudly called it, came into its own. The study of disordered function and the interpretation of signs and symptoms in terms of function became the intense and fruitful study of men whose names are still familiar: Schwann, Remak, Henle, Traube, Virchow, Wunderlich, and others.

It would be difficult to overestimate the achievements of these men, and hard perhaps for some to appreciate the intellectual ferment in which they worked. Their aim was to penetrate deeper than the descriptive disciplines which were dominating medicine, and to understand the processes at work in disease.

To probe behind phenomena and to seek the principles they exemplify is the first step in a philosophy of medicine, for philosophy is the attempt to understand things by their causes.

Yet, as I have already observed, there is excess in all greatness, and once again the pendulum of opinion swung too far. The notion of process led

inevitably to a distrust of the notion of specific diseases and their classification into groups, like animals or plants.

In a measure these German enthusiasts were right when they declined to accept a "disease" as a natural entity, as something in nature. In nature there are for the practising doctor only sick persons, and the composite average picture of disease we construct from the study of like illnesses in different persons is not something concrete, but simply a mental construct; and what the German physiological school was rejecting was what has been called "the fallacy of misplaced concreteness." Yet in exposing a logical error in current notions, they went too far when they denied the specific characters of many different illnesses which the insight of their predecessors had identified. In popular language, they threw out the baby with the bath water -as enthusiastic reformers are so apt to do—and failed to realise that descriptions of different forms of illness, nosography, remains and must always remain essential to the clinician.

Nevertheless, this physiological epoch in the medicine of the 19th century, incomplete as were its insights, was a great, nay an essential, step in the forward growth of medicine, and it had the additional and priceless merit that it saw the introduction of the experimental method in medicine.

Yet, here also, history repeated itself, and once more an outlook that transformed the face of medicine came in a measure, and for a time, to distort perspective, as when Virchow, ignoring the art of medicine, proposed that practical medicine should become applied theoretical medicine. Under his influence, the strength of which it is now difficult for us to appreciate who have no towering figures in medicine comparable with the giants of 90 or 100 years ago, the clinical method and nosography in general became disparaged, its progress delayed and the art of medicine ignored. I sometimes think that even yet the clinician has not wholly regained that pride in his discipline which its exacting nature and its record of achievements demand, and is prone

## E. P. ANTHONY, INC.

Druggists

Wilbur E. Johnston

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to accept too easily and to apply uncritically the facts he is offered from the experimental laboratory.

The same attitude towards the clinical method was shown by Claude Bernard in France when he invited the physician to desert the bedside for the laboratory in his search for knowledge, since he—as many lesser men since—believed the clinical method of study was worked out like an exhausted vein of precious metal in a mine.

Yet while Virchow and Bernard were writing obituaries of the clinical method, Charcot and Trousseau in France and Hughlings Jackson and others in this country were still demonstrating what the clinical method could achieve, not only in nosography, but also in the philosophic understanding of normal and disease processes. After all, the clinician is perhaps the best judge of the usefulness of his methods.

Trousseau, indeed it was, who made one of the first steps in the next essential condition of advance in medicine, when he proposed "that what gives the specific diseases their immutable properties is not the quantity but the quality of the morbific cause": thus opening the stage of ætiological inquiry in medicine. To each particular cause of disease the system reacts with specific and characteristic phenomena. In other words, when we endeavour to construct typical clinical pictures we are taking a first step to track down some specific pathological cause.

At the time of Trousseau's death in 1867, Pasteur was engaged upon brilliant studies of the cause of fermentation and putrefaction, the fruit of which was to establish that many diseases were reactions to specific micro-organisms, and bacteriology was born.

Neither time nor your patience would allow me to discourse upon the revolutionary influence of what has been called the germ theory of disease upon medicine. My point rather is that this also, by its very success, tended to give a too exclusive outlook to the generation in which it developed and achieved its so striking triumphs.

Causation in disease was a larger and more complex problem than had yet been envisaged, and was the subject of a great deal of partial thinking—still current amongst us in those simple souls who like to see in chronic and obscure ill health the work of that nebulous concept "focal infection." A cynic has said that to "find a germ and stop thinking" is still the preoccupation of too many amongst us.

We have, in fact, forgotten Aristotle and his four orders of causation—material, formal, efficient, and final—and we are painfully relearning them in a terminology of our own, too, often without realising that it is only a process of rediscovery.

In short, intemperate enthusiasms of doctrine still sway us, and perhaps never more than now when we see psychiatry and psychosomatic medicine running neck and neck, each seeking to become the master notion in modern medicine.

We have seen, then, in our time the progressive widening of our notions of causation, of ætiology, in disease. To bacteriology have been added insights derived from chemistry, biochemistry, and now physics, and from the intermittent and often smoky

light of psychology.

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From all this mass of knowledge, a more philosophic notion of causation is taking shape, and has found expression with admirable lucidity and conciseness in a paper by Dr. J. L. Halliday, entitled Principles of Ætiology, published in the British Journal of Medical Psychology in 1943. I could wish that this paper were far more widely known; for it is the best synthesis of a complex problem that I have met, and should be an admirable corrective to those recurrent accesses of dogmatic and partial thinking which, generation after generation, have disturbed the steady and rational process of growth in medicine.

A stage has now been reached when we realise that we have become increasingly dependent in medicine upon the application of biological and physical science to the solution of our problems. To take but a few obvious examples: the value of the X-ray film in the diagnosis of carcinoma of the lung, and its application of arteriography in the detection of intracranial aneurysm; and those blood and body-fluid examinations of almost infinite diversity which are needed for the elucidation of problems that clinical observation raises but cannot by itself resolve.

In short we may now be said, in a military metaphor, to have "a force of all arms" at our disposal in the recognition, study, and treatment of disease.

What, amidst this profusion of resources, is now the place and importance of clinical observation by the trained senses, which at one time comprised virtually the entire activity of the physician? Has it been displaced? May we relegate it to the realm of the obsolete? Is its pursuit a mere archaism?

We are now in a period of unprecedentedly rapid growth in medicine, and it would be foolish, and contrary to history, to suppose that we are not even now exposed to all the dangers of partial thinking. Indeed, with the growth of our resources these dangers multiply, and I fear that the notion of clinical observation as a largely worked-out method, as in some of its aspects an archaism, even more the notion that it has no secrets left to yield to its followers, have appeared amongst us and are in fact another manifestation of partial thinking.

I am suggesting to you the idea that perhaps the more balanced view is that for the clinician there is a hierarchy of methods at his disposal, and that, as in all hierarchies, one comes first and is indispensable.

I am suggesting that for the good clinician the clinical method—the method of history-taking and direct examination-takes primacy, and that without it, and the lead it gives the prudent doctor, medicine becomes a chaos of activities and techniques, a blind fumbling after the truth in any particular case.

It is the first clinical survey and judgment that determines what devices of applied science should be used and in what sequence; what special tests can be expected to yield a relevant answer and what cannot.

All this clinical survey demands of us something over and above the skilled employment of applied scientific methods. It demands experience and pru-

dence, or practical wisdom.

In short, if I am right in my view, the clinical method of direct observation and examination has in it an element of practical wisdom, which the employment of scientific techniques of itself does not possess. It is relatively easy to acquire techniques, but judgment in their use is the reward of clinical experience carefully garnered. Judgment is of the essence of the clinical method in its fullness. It is easy to perform a lumbar puncture, but it is not so easy to know when and when not to perform it. It is simple to do an air ventriculogram, but apparently not so simple to know when to refrain from doing it-though indeed I have heard a surgeon say "it does nobody any harm to have air put into his ventricles"-naturally it was of someone else's ventricles that he was thinking when thus he spoke.

I return now to my military metaphor, that in which I spoke of the clinician facing his tasks of diagnosis and treatment with a force of all arms at his disposal: clinical, chemical, biochemical, physical, bacteriological, pathological, radiological, and so on.

Each such task that faces him is a different one; even the patient is no constant, but a sum of his inheritance, constitution and environment, and of the psychological influences that have helped to mould him. Therefore each task calls for generalship in the use of the available resources. Now a skilled general does not throw all his forces into every battle in an indiscriminate fashion. He chooses his weapons and the circumstances and the moment when he shall use them. In other words he uses judgment. His judgment may be fallible, the event may falsify it. Nevertheless, he remains aware that judgment, discrimination, and foresight concluded on page 628

#### NON-HOSPITALIZED TUBERCULOUS PATIENTS IN RHODE ISLAND

A Summary by F. G. RUEST, M.D., Director, Division of Tuberculosis Control, and JEAN C. MACCORI-SON, Executive Director, Rhode Island Tuberculosis and Health Association, of the recently published study by their organizations with the co-operation of the U.S. Public Health Service.

 ${f T}_{
m HE}$  study of the non-hospitalized tuberculous patients in Rhode Island has been completed. The full report has just been published, with detailed findings and implications for future activity as indicated for the private physician, the official and voluntary agencies, and individuals most directly concerned with tuberculosis control.

The study was undertaken in October, 1957, with the endorsement of the Rhode Island Medical Society. It was conducted jointly by the Division of Tuberculosis Control, State Department of Health, and the Rhode Island Tuberculosis and Health Association, with the co-operation of U.S. Public Health Service.

Its purpose, as set forth in a schedule outlined for all co-operating workers, was to learn "more about the clinical status, medical supervision, and recommendations of the non-hospitalized tuberculous patients, as well as all nursing and social services being utilized by them. This information will serve as a basis for determining how existing facilities and services can be better utilized, and what, if any, additional treatment and rehabilitation facilities are needed."

Publication of the complete report was undertaken by the Rhode Island Tuberculosis and Health Association, through its sale of Christmas Seals. It may be obtained from Association headquarters,

76 Dorrance St., Providence 3, R.I.

Of primary interest to physicians are the excerpted findings listed below, and the recommendations which pertain to medical aspects of the patient's care.

#### Method

A study date of October 1, 1957, was chosen. Non-hospitalized cases were selected from the state case register on the basis of the latest diagnosis on or prior to that date, and fulfilled one of the following criteria:

- 1. Active—included those with positive bacteriology, regardless of how the clinical status was classified, and those recorded locally as "quiescent" or "arrested" when medical decision indicated that their clinical classification was "probably active."
- 2. Activity undetermined, but probably active.

3. Inactive (or other than active) with current chemotherapy recommendations.

The study date was established so information gathered would reflect the situation as it existed at a specific time. A *cut-off* date of January 1, 1958, was selected, by which time information was to be submitted.

For study purposes, the state was divided into four districts: Providence, Northern, Southern, and Southeastern. A series of orientation meetings was held for public health nurses in the four districts, on whom would devolve the major task of collecting information. Resource personnel on state and district levels were available for consultation throughout the study.

Data came from nursing records, hospitals, clinics, physicians, health and social agencies. After editing for accuracy and consistency, those cases not meeting strict criteria were removed from the

study.

#### Findings of Particular Interest to Physicians

The study covers 257 patients. Of the 662 originally selected, 405 did not meet study criteria.

Of the 257 chosen for study, 123 are active and probably active; 26 presumably active (these cases did not have any activity report within 12 months preceding the study date, even though the latest diagnosis was active or probably active); 108 other than active with drugs prescribed.

About three fourths of the patients at home, diagnosed active or inactive on drug therapy, are in the advanced stages of disease; about 89% of those classified as presumably active (with latest clinical

report over one year ago) are in the advanced stages.

Seventeen per cent of active cases did not have a medical report in the year prior to the study.

About one third of active cases had no medical

supervision.

Fifty-three per cent of active and presumably active cases had no bacteriological report in the past six months. Another 29% of active cases are at home, with a recent positive sputum; only 18% had a negative sputum in the sixth months prior to study date. It must be concluded that the results of a most important laboratory test are not known for a high proportion of this group which should have priority of follow-up.

This, plus the fact that one third of the active cases had no or unknown medical supervision, reveals a serious gap in supervision and care of this most important group of the health department's case load.

Of those under medical supervision, nearly 60% are under the care of private physicians.

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Less than 40% of active cases had drug therapy recommendations.

Only 14% of patients at home have a current recommendation for hospitalization.

Eighty per cent had previous hospitalization. Of this group, 82% of patients discharged from hospital as inactive are still inactive. However, 72% discharged as active are still active. Forty-four per cent of patients in the study, discharged from hospital left against medical advice. Over three fourths of these were among those clinically active on discharge. Sixty-one per cent of currently active cases remained in hospital less than six months; only 19% of those considered inactive remained in hospital less than six months.

Of the total number of patients in the study, 20% received no nursing service, yet over 60% of this group had active or presumably active disease.

Eighty per cent of patients received nursing visits; however, the percentage of patients visited was lowest in the group first reported in the past six months. More emphasis on nursing visits among these newly reported cases would provide an opportunity for teaching and guidance in areas where the need is greatest.

Responsibility for reporting cases in Rhode Island rests mainly with the diagnosing physician. Responsibility for instruction of patients and their families on how to protect themselves and the community rests with the public health officials. When a new case is reported by a physician, the local nurse contacts him to learn whether or not he wishes home nursing service. Nearly 40% of cases not visited were not referred to the public health nurse—indicating a breakdown in this procedure. Also, the physician frequently requests that no nursing visit be made.

Only one third of the active and presumably active patients at home were living under conditions conducive to adequate care of the patient and protection of his family and the public. Of this group, about half had recommendations for hospitalization.

#### Recommendations

There should be more prompt and more complete reporting of tuberculosis cases to the State Department of Health, as required by law.

Closer co-operation between the Division of Tu-

berculosis Control and the supervising medical authorities concerning periodic interchange of patient information is urgently needed.

X-ray and laboratory facilities should be utilized more frequently by the supervising physician. All active and presumably active cases should have sputum examinations by smear and culture at least once every three months until the sputum becomes negative and the lesion stabilized. Patients denied benefit of laboratory services are not receiving the minimum of medical supervision required for proper treatment of their disease.

Every patient with a new diagnosis of active tuberculosis should be encouraged to go into the hospital for a period of time sufficient to insure proper control of his disease. This minimum period should last until there is sputum conversion and regressive changes in X-ray appearance of the lesion have taken place. It is still the considered opinion of most authorities that a period of hospitalization is desirable for every newly diagnosed case of tuberculosis.

Treatment facilities for the tuberculous patient should be made available in out-patient departments of general hospitals. These services are indispensable for the care of those who refuse hospitalization, and who are unable to pay for medical services and drug therapy.

Adult contacts should be X rayed routinely at least every six months; children and teen-agers should be tuberculin tested with the same frequency until they become positive reactors. If and when the tuberculin reaction becomes positive, a chest X ray should be obtained and repeated every six months. These procedures should be continued for a period of at least two years following the termination of exposure.

Use of the intradermal tuberculin test, as a screening procedure, should be developed under the auspices of the Division of Tuberculosis Control. It reveals infection before any evidence of disease is apparent by X ray, and furnishes a valuable lead to open cases of tuberculosis within the individual's family or neighborhood. It may indicate a need to initiate prophylactic chemotherapy among children, thus lessening the possibility of further complications—pulmonary, meningeal, or hematogenous.

All concerned with tuberculosis control should work to reduce the high percentage of against medical advice hospital discharges. The physician, public health nurse and medical social worker have a responsibility in preparing the patient for hospitalization; if he is well oriented he is more likely to remain until discharged with medical advice.

Further study is indicated of the problem of the medically indigent patient and his family, as to whether or not medical services and drugs are availconcluded on next page

able to all in need of them. Medical care and drugs are now available only to the patient meeting the Social Welfare Department's criteria for medical indigence—a matter calling for realistic reappraisal in the light of today's needs.

Rehabilitation services for the non-hospitalized tuberculous patient should be employed more frequently; too few patients have been referred to rehabilitation agencies, and most referrals have been during hospitalization. Broadly speaking, every phase of patient care is rehabilitation, and must continue from the time of diagnosis to that of his return to normal living. Referral for vocational rehabilitation should begin as soon as the physician's recommendation is available, so that, where possible, the period of inactivity can be used in preparation for suitable future employment.

The full report covers many other aspects of tuberculosis control, including public health nursing, the functioning of government and social agency services, social and economic problems of the patient, and educational programs. Information covered, presents study findings on a state-wide basis, and in many cases, supplements it with statistical breakdown for districts.

## ON CLINICAL MEDICINE concluded from page 625

are qualities expected of him and necessary to the maximal efficiency of his activities.

So each of us needs to show generalship in the use of our resources, and this generalship requires as a condition of its possession by us, clinical observation and clinical judgment. And, further, this generalship, as I am calling it, is demanded of us not only because it is a logical use of reason, but also on grounds of prudence; that prudence that bids us cherish first of all the welfare of our patients.

Now, you may say that it is never prudent to leave anything to chance, that more mistakes are made from carelessness than from ignorance. There is an element of truth in this, but it is not a justification for indiscriminate investigation, which is unintelligent, wasteful, and often a cause of discomfort and hazard to the patient. We still have the responsibility to plan systematically, to employ each test for an end we can both specify and justify, and to refrain from forms of investigation that can offer no relevant information and can promise no benefit to the patient.

I suppose it would not be an exaggeration to say that every day many hundred square yards of X-ray films are unnecessarily exposed and many man hours of radiographers' time—not to mention a deal of money—are squandered. Pathologists and bacteriologists could, I feel sure, echo my complaint on this score.

I am not advocating a deliberate archaism of

method; a refusal to be up to date; I am simply seeking to stress that the more resources we have the greater demand their use makes upon our intelligent forethought. They are demands upon clinical judgment and not substitutes for it.

It will be time enough for us to reproach the State for the number of forms its requires the doctor to complete, when we have put some check upon our own private orgies of chit-signing to the laboratory departments of our profession.

It seems to me, therefore, that there are two lessons we may learn from the history of modern medicine, lessons for the teacher not less than for the taught. That the clinical discipline is the real and only sound foundation of wisdom in the practice of medicine. Secondly, that a great safeguard against partial thinking and specialist enthusiasms is, at least for those who teach medicine, some measure of understanding of the history of modern medicine. This does not simply mean familiarity with the chronicles of medicine, which is what is commonly understood by the term "the history of medicine." After all, chronicles are merely the raw material of history. What we need is some appreciation of the movements of thought, the rise of new insights—their good and their bad influence. Modern medicine is rooted in its past, and of that past we should seek to understand the significance. Such an understanding is surely vital to the teaching of medicine. Only when we possess it can we hope to orient ourselves in the rapidly growing body of knowledge and avoid the errors and illusions of finality of our predecessors and of some of our contemporaries.

The one enduring and unbroken thread which runs through the past three centuries of medical history, sometimes hidden in the rich and intricate fabric of medical knowledge, but always holding it together and lending coherence to its pattern, is the clinical discipline. Without it, medicine must become a chaos of techniques employed by clever people devoid of humanism and practical wisdom.

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## The RHODE ISLAND MEDICAL JOURNAL

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#### THE PROVIDENCE RESCUE SQUADS

**A**<sup>N</sup> OLD MAN, held in the vice of his recurrent asthma, sits on the steps of his boarding house waiting; a child struck by an automobile, lies unconscious on the street; a busy executive working at his desk is suddenly seized by severe pain in his chest; high up in an electrical powerhouse a man is caught in a large transmission belt; in her home, an old woman trips on a rug and cannot rise from the floor; a woman finds herself in imminent labor and needs immediate attention; these are but a few of the people who require the care, skillful and prompt, at all hours of the day and night, of Captain Badger and his associates who compose the three Rescue Squads in the Providence Fire Department. To talk with these men, and to listen to the story of their experiences, some of them humorous, many of them tragic, all of them interesting, is to enhance one's esteem for the men and one's admiration for their work

Sixteen years ago there were no rescue squads in Providence, but members of the Fire Department, increasingly aware of the need, began to talk about a "rescue squad." By 1940, plans were under way to put one in service. The proposal was altogether novel, and, as usual, was met by not a little skepticism, lay and medical, as to its feasibility and value. In spite of all this, men were trained, equipment bought, and on January 11, 1942, "Rescue Company No. 1" was installed at headquarters, La Salle Square, to render emergency first aid to the public.

The public immediately showed its confidence in the Squad by calling it, in its first year 254 times, an average of 21 calls per month. This was an excellent beginning, but it was only the beginning, for by the end of 1956, calls had increased to 3,638 per year, and from January 1 to October 18, 1958 they had risen to 5,250. To meet these rapidly mounting requests for help, a second squad was stationed at Messer street in 1952, and in 1957, a third squad at Branch avenue and North Main street.

Members of our profession are especially beholden to the Rescue Squads for many invaluable services to ourselves and to our patients—services always graciously given, which we could not ourselves have rendered. Most of us recall the pleasant occasion on January 3, 1955 when the Rescue Squads of the Providence Fire Department were awarded bronze plaques by the Providence Medical Association for outstanding community service. In awarding the plaques Doctor William J. O'Connell, president of the Association, remarked, "As an Association we have individually and collectively noted the outstanding service that has been given the people of the Greater Providence area by the Providence Fire Department, through the service of its special rescue squads. There are few among us who have not had occasion to work with one of these units, to know how capably they are trained for their tasks, and how unselfishly they serve, with little or no recognition for their work above and beyond their specified assignments as firemen." And while, as physicians, we pay our small tribute of commendation and gratitude to the rescue squads of Providence, let us be mindful of the similar

concluded on next page

services which are being rendered by the rescue squads in other communities of the state; for the splendid work of these dedicated men should never be taken for granted.

#### POLIO VACCINATIONS TO RESUME

The success of the Salk vaccine has tended to lull the general public into a sense of security, and apathy about continuing the control of the disease. In spite of the fact that there has been no shortage of vaccine at any time during the year, the progress that could and should have been made was not.

For example, of the population under the age forty, about 53% has not had the basic three injections, and over a third has had no vaccine at all. Further, there were 1,815 cases of paralytic polio during the first nine months of the year, 258 more than in the same period in 1957.

The increase in the number of paralytic cases is no reflection on the efficacy of the vaccine. During the three and one-half years of the use of the vaccine, its effectiveness rate has held at between 60% and 90%. Nor is there any evidence that properly vaccinated persons are losing their immunity.

Polio is not yet conquered. In the coming months a promotion campaign to alert the public to a continuing necessity for vaccination will be undertaken by the national Advertising Council in cooperation with the American Medical Association, the National Foundation, state and local health departments and medical societies, and private groups.

Are you helping to get more people inoculated with the Salk poliomyelitis vaccine?

## HEALTH INSURANCE FOR THE OLDER AGED PERSON

The action of the House of Delegates of the Rhode Island Medical Society at its September meeting establishing a special committee to explore the feasibility of paid up at age sixty-five years coverage under our Physicians Service program is further evidence of the desire of the physicians to cope with the costs of medical care for all persons.

However, it should be noted that the Rhode Island Medical Society Physicians Service already leads the nation in enrollment and in accepting persons of all ages. Our record includes coverage for three persons 100 years or over, and for some 66,000 beyond the age of sixty-five.

Industry now pays the bulk of the cost for insurance under the voluntary programs, mainly as part of wages. Some companies have already adopted the procedure of continuing Blue Cross and Physicians Service coverage for retired employees as part of their pension or retirement programs. Certainly, the whole problem warrants some study, and the Society is to be commended for undertaking it.

We note with interest, in connection with this subject that a newly published survey by the federal government indicates that the number of older aged persons with health insurance is growing at a much faster rate than the senior citizen population itself. Today there are nearly 15 million Americans who are sixty-five years of age or over. This figure is expected to rise to 21 million persons by 1975. The government study shows that the number sixty-five years and over increased by 13% from March, 1952 to September, 1956, while the number of senior citizens covered by health insurance went up 56%.

It would appear then, that the needs of our older age group can be adequately met by joint planning between the insurance industry and medicine without our rushing to Washington for a federal subsidy for which exorbitant taxes would be imposed.

#### IMPORTANT ANNOUNCEMENT

AFTER MANY MONTHS OF CAREFUL STUDY YOUR RHODE ISLAND MEDICAL SOCIETY COMMITTEE ON INSURANCE HAS APPROVED AN EXCELLENT NEW PROGRAM OF . . .

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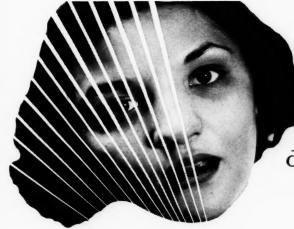
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<sup>\*</sup>A Symposium on the Pharmacologic Effects of Dartal on the Liver, Chicago, Searle Research Laboratories, Feb. 7, 1958.

#### HOUSE OF DELEGATES

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#### RHODE ISLAND MEDICAL SOCIETY

#### Report of Meeting Held September 24, 1958

A REGULAR MEETING of the House of Delegates of the Rhode Island Medical Society was held at the Medical Library in Providence on Wednesday, September 24, 1958. The meeting was called to order by the president, Doctor Francis B. Sargent, at 8:00 P.M. The following delegates were in attendance:

BRISTOL COUNTY: Ulysse Forget, M.D. KENT COUNTY: Peter C. H. Erinakes, M.D.; Edmund T. Hackman, M.D. NEWPORT COUN-TY: Anthony T. Carrellas, M.D.; Philomen P. Ciarla, M.D. PAWTUCKET DISTRICT: Ferdinand S. Forgiel, M.D.; Robert C. Hayes, M.D.; Alexander A. Jaworski, M.D. WASHINGTON COUNTY: (none). WOONSOCKET DIS-TRICT: Joseph A. Bliss, M.D. OFFICERS OF THE RIMS (other than delegates): Francis B. Sargent, M.D.; Thomas Perry, Jr., M.D. STATE HEALTH DEPT. DIRECTOR (without vote): Edward A. McLaughlin, M.D. PROVIDENCE MEDICAL ASSOCIATION: Charles J. Ashworth, M.D.; Irving A. Beck, Jr., M.D.; Bertram H. Buxton, Jr., M.D.; Wilfred I. Carney, M.D.; William B. Cohen, M.D.; Harry E. Darrah, M.D.; Michael DiMaio, M.D.; Frank D. Fratantuono, M.D.; J. Merrill Gibson, M.D.; John F. W. Gilman, M.D.; Seebert J. Goldowsky, M.D.; John C. Ham, M.D.; Joseph Hindle, M.D.; Albert H. Jackvony, M.D.; Walter S. Jones, M.D.; Joseph G. McWilliams, M.D.; Francis W. Nevitt, M.D.; Arnold Porter, M.D.; William J. Schwab, M.D.

Also present were Doctor Ezra Sharp, chairman of the Committee on Aging, Doctor James B. Moran, chairman of the Committee on Disaster, Doctor Hannibal Hamlin, chairman of the Charles V. Chapin Study Committee, Doctor Harold Williams, chairman of the Mental Health Committee, and John E. Farrell, Sc.D., executive secretary.

#### Report of the Secretary

Doctor Thomas Perry, Jr., secretary, reviewed his report which had been published in the handbook issued to the delegates.

Action: It was moved that the Report of the Secretary, as submitted, be received and placed on file. The motion was seconded and adopted.

A copy of the report is made part of the official minutes of the meeting.

#### Report of the President

Doctor Francis B. Sargent, president, reviewed his report, copy of which had been published in the handbook for the delegates, a copy of which is made part of the official minutes of the meeting.

Action: It was moved that the Report of the President be approved and placed on file.

#### Report of the Treasurer

The president noted that Doctor Garside was not present, but his report had been issued to the delegates in their handbook.

Action: It was moved that the Report of the Treasurer as submitted to the delegates be approved. The motion was seconded and adopted. (Copy of the report is made part of the official minutes of the meeting.)

#### Recommendations from the Council

Doctor Perry reported that the Council made the following recommendations to the House of Delegates:

1. That the Society's official representatives on the Board of Directors of the Blue Cross, for the fiscal year starting with the annual Blue Cross meeting in January, 1959, be: Charles L. Farrell, M.D., and Charles J. Ashworth, M.D. effe

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 $Action\colon$  It was moved that the recommendation be adopted. The motion was seconded and passed.

2. That the Society's official delegates to the House of Delegates of the American Medical Association for the period from January 1, 1959 through December 31, 1960 be: DELEGATE: Charles J. Ashworth, M.D., of Providence, and ALTERNATE DELEGATE: Arthur E. Hardy, M.D., of Edgewood.

Action: It was moved that the recommendation be adopted. The motion was seconded and passed.

3. That the 1959 dues assessment for active continued on page 636

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members more than one year in practice be \$50.00, and for members in their first year of practice, \$25.00.

Action: It was moved that the recommendation relative to dues for 1959 be adopted. The motion was seconded and passed.

#### Communications

The secretary reported the following communications:

 A letter of resignation from the Society by Doctor Arthur E. O'Dea, who is moving to Massachusetts.

Action: It was moved that the secretary express to Doctor O'Dea its commendation for his outstanding service to the state of Rhode Island as its chief medical examiner and also for his excellent leadership as chairman of the Committee on Highway Safety. The motion was seconded and adopted.

2. A recommendation from the Pawtucket Medical Association that the House of Delegates of the Rhode Island Medical Society investigate paid-up at age 65 years' health insurance, particularly as regards the cost and public acceptance, and whether or not this feature should be incorporated under the present Blue Cross-Physicians Service program.

Doctor Alexander Jaworski, Delegate from Pawtucket, discussed the work of the Committee on Economics of the Pawtucket Medical Association outlining its preliminary study of health insurance coverage for persons over the age of 65 years. At the conclusion of his discussion, Doctor Jaworski moved that the House of Delegates of the Rhode Island Medical Society, through a special committee, investigate the possibility of a paid-up age 65 years' health insurance plan under the Rhode Island Medical Society Physicians Service from the following points of view:

- Its effectiveness as a specific measure to combat governmental health plans for the aged,
- 2. Its financial feasibility,
- Its public acceptance; and further that this committee report to the House of Delegates with recommendations within six months.

The motion was seconded and after discussion was approved on a divisional vote.

Report of the Committee on Aging

Doctor Ezra Sharp, chairman of the Committee on Aging, reported on a medical society planning conference held in Chicago by the American Medical Association's Committee on Aging. His major criticism of the two-day conference was its failure to devote any time to a discussion of the economic problems in the health care of the aged.

#### Benevolence Fund

The president noted that the trustees of the Benevolence Fund had submitted their report which was included in the handbook to the delegates, copy of which is made part of the official minutes of the meeting.

Action: It was moved that the report of the trustees of the Benevolence Fund be received and placed on file.

#### Cancer Committee

The president noted that the Cancer Committee had submitted its report to the delegates as published in the handbook, copy of which is made part of the official minutes of the meeting.

Action: It was moved that the report be received and placed on file.

#### Charles V. Chapin Study Committee

Doctor Hannibal Hamlin, chairman of the Charles V. Chapin Study Committee, briefly reviewed and commented on the highlights of the report prepared by Doctor Ingalls and released to the press on August 11 with the approval of the Council of the Society.

A written report of the Committee was included in the handbook to the delegates is made part of the official minutes of the meeting.

Action: It was moved that the report of the Charles V. Chapin Study Committee be received and placed on file.

#### Civil Defense

Doctor James B. Moran, chairman of the Society's Committee on Disaster, reviewed the work being done in civil defense in Rhode Island. He noted that with the development of the "H" bomb a new phase in survival had arisen. He stated that members of the Committee had been serving in an advisory capacity to the governor's committee relative to the locating of ten 200-bed emergency hospitals within the state. With the establishment of these hospitals he reported that the Disaster Committee hoped to draft a program relative to directing surgical teams to each hospital unit.

Doctor Moran also reviewed a regional conference on civil defense held in September at Boston under the auspices of the American Medical Association. He cited the magnitude of the task ahead

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#### HOUSE OF DELEGATES

continued from page 636

for the Committee and for all physicians, and he asked for continued support as the civil defense program is expanded.

Action: The House commended Doctor Moran for the excellent work of his Committee and a motion was made that the report be approved. The motion was seconded and adopted.

#### Diabetes Committee

The president noted that the Committee on Diabetes had submitted a written report which was included in the handbook to the delegates, a copy of which is made part of the official minutes of the meeting.

Action: It was moved that the report of the Committee on Diabetes be received and placed on file. The motion was seconded and adopted.

#### Health Insurance

Doctor Robert C. Hayes gave an oral report for his committee, stating that the group health and accident program would be applied this fall to provide a coverage for nursing service, and a program for overhead expenses coverage would also be offered on a group basis. He discussed the Rhode Island Plan which parallels the Physicians Service plan and he asked the House to give consideration as to whether it should be continued.

Action: The House voted that the Health Insurance Committee should review and consider the advisability of discontinuing the Rhode Island Plan, and that it report its recommendation to the House of Delegates.

A motion to approve the report of the Health Insurance Committee as submitted was seconded and passed.

#### Maternal Health

The president noted that the Maternal Health Committee report had been submitted to the delegates in their handbook, a copy of which is made part of the official minutes of the meeting.

Action: It was moved that the report of the Maternal Health Committee be received and placed on file.

#### Medical Defense and Grievance

Doctor Earl F. Kelly, chairman of the Committee on Medical Defense and Grievance, reported briefly on the work of his Committee. His report was one of information and called for no action by the House.

#### Committee on Highway Safety

The president reported that the Committee on Highway Safety had submitted a report too late to be included in the handbook, but copies had been prepared for distribution to the delegates at the meeting. The report was read in part by the secretary, and it was discussed by the members of the House in relation to the report of the Committee on Mental Health.

Action: It was moved that the report of the Highway Safety Committee be received and placed on file. The motion was seconded and passed.

#### Report of the Committee on Mental Health

Doctor Harold W. Williams discussed the report of his committee as found in the delegates' handbook, a copy of which is made part of the official minutes of the meeting. He discussed the report in relation to the report of the Highway Safety Committee.

Action: It was moved that the House adopt the resolution submitted by the Committee on Mental Health. The motion was seconded and passed.

The House voted that the report of the Committee on Mental Health be approved as a whole and placed on record.

#### Physicians Service

Doctor Francis B. Sargent reported that the plans for the extension of Physicians Service were progressing, and he anticipated a meeting in the immediate future of the chairmen of the subcommittees of the indemnity schedule committee. He stated that if it were necessary for a meeting of the House of Delegates to discuss the final report, he would call a special session.

#### Medicare Program

Doctor Sargent noted that a listing of the changes in the medicare program adopted by the Departwent of Defense had been included in the handbook of the delegates for their information.

#### Miscellaneous Business

Doctor J. Merrill Gibson reported briefly on his experience and that of other physicians who participated in a civil defense study earlier in the year at which the seriousness of a radioactive fallout for Rhode Island residents was highlighted. He commended Doctor Moran for the continued fine work of the Disaster Committee and he urged the delegates to give every support to the development of the civil defense disaster program in the coming months.

#### Adjournment

The president declared the meeting adjourned at  $9\!:\!50$   $_{\rm P.M.}$ 

Respectfully submitted,

THOMAS PERRY, JR., M.D., Secretary continued on page 640



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#### REPORT OF THE SECRETARY

At meetings since the April meeting of the House of Delegates the Council:

Appointed the chairman of the Society's Committee on Mental Health to be its official delegate to the 5th Annual Conference on Mental Health to be conducted by the American Medical Association.

Approved a recommendation from the Rhode Island Joint Commission for the Improvement of the Care of the Patient that the Committee become a standby committee.

Referred back to the Pawtucket Medical Association for clarification a resolution submitted to the Society.

Approved of the drafting of a statement from the Society to the Congressional Committee to which had been referred H.R. 9467. (The statement appears in the August issue of the Rhode ISLAND MEDICAL JOURNAL.)

Authorized the Board of Trustees of the Medical Library to make any needed or urgent repairs.

Voted to bring to the attention of the chairman of the Executive Committee of each hospital in the State Section 5 of the report of the legal counsel relating to hospital records and tissue committees.

Approved a report by Doctor George W. Waterman relative to the federal Medicare Program, and commended Doctor Waterman for his work in this important assignment.

Voted to request that the Governor consider official representation from the Society on the Advisory Committee to the Division of Aging, and also on the Commission to study methods of providing financial assistance for students pursuing higher education.

Requested the chairman of the Industrial Health Committee to submit a report with recommendations relative to special assistance to the Workmen's Compensation Commission.

Named Doctors Francis B. Sargent, George W. Waterman, and Thomas Perry, Jr., as the Society's official delegates to the Council of the New England State Medical Societies for 1958-59.

Approved of the request of the Library Committee for the employment of a full-time assistant librarian.

Voted support of the Woonsocket District Medical Society in its protest to a local industrial concern relative to its requirement that injured workers first consult a designated physician rather than the physician of their choice as provided under the Workmen's Compensation Law.

Authorized the executive secretary to represent the Society at a conference meeting to plan a regional rural health conference. Voted to request the Mutual Insurance Company of Omaha, the fiscal agent for Medicare in Rhode Island, to appoint a local representative to answer reasonable inquiries from physicians regarding coverages in view of the new restrictive regulations established for the program.

Approved of the proposed budget for 1959 submitted by the treasurer, and also approved of changes in the investment program as recommended by the Trust Department of the Industrial National Bank.

Voted that the officers of the Society should endeavor to resolve the request of the editor of the new A.M.A. News Bulletin for a local correspondent.

Voted a \$300 donation to furnish equipment for an American Legion Blood Donor Mobile Unit.

Approved of the release to the public of the special study report of the Charles V. Chapin Committee prepared by Doctor Ingalls of Boston.

THOMAS PERRY, JR., M.D., Secretary

#### REPORT OF THE PRESIDENT

At this meeting I report to the House the following actions that have been taken during the summer months:

#### Appointment

I have named Doctor George McClellan of Pawtucket as trustee-at-large to the Board of Trustees of the Medical Library Building for the year 1959.

#### Conference on Aging

The problems of the aged, particularly their health problems, are scheduled for much intensive study in the coming months. A White House Conference on Aging is scheduled for next year, and it will be preceded by a State Conference, under provisions of Congressional legislation enacted following its introduction by Congressman John E. Fogarty of Rhode Island.

Two weeks ago the American Medical Association held a Conference on the Problem of the Aged, and I appointed Doctor Ezra Sharp, chairman of our State Committee, to attend. He will report to you at this meeting.

#### Cancer Conference

The Cancer Committee plans a seminar for general practitioners at Peters House, Rhode Island Hospital on October 19 and 26, and a statewide conference on cancer for all physicians next March 18 under the auspices of the Society.

#### Civilian Defense

Recently a Regional Civilian Defense conference was held in Boston which the chairman of our Disaster Committee of our Society attended, and his report will be made directly to you.

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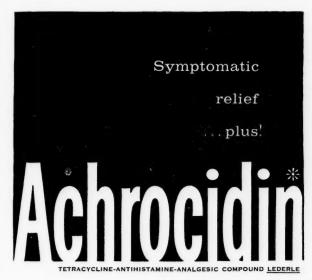
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#### CIVIL DEFENSE PLANNING IN THE NORTHEAST

On Civil Defense of the Council on National Defense of the American Medical Association was held with state medical society and Civil Defense representatives of the Northeast region at Boston, Massachusetts. Representing Rhode Island at this meeting were Dr. James B. Moran, chairman of the Rhode Island Medical Society's committee on disaster, and Mrs. H. Frederick Stephens, Eastern Regional Chairman of Civil Defense for the Woman's Auxiliary to the American Medical Association.

Highlights of this session, as reported by the Council on National Defense of the A.M.A. are summarized as follows:

#### Status of State Medical Care Plans for Disaster

There was general agreement that missing elements in civil defense today were stimulation, guidance, and assistance from the federal level. Stimulation and guidance, especially standing operating procedures and standard terminology, would be most welcome and helpful at the state level, especially in regional planning. It was felt that this would help in some measure to overcome the apathy of not only the general public but also that of some medical and paramedical personnel. Greater participation in medical civil defense affairs and civil defense generally is most urgently needed. The participation by physicians must be continually stressed.

#### Rhode Island

The planning of the medical aspects of civil defense was reported to be progressing satisfactorily in Rhode Island. Hospitals have disaster plans and the governor has appointed a commission which is active in prepositioning 200-bed civil defense emergency hospitals. These emergency hospital units have also been displayed to the public.

#### Connecticut

Connecticut reported that there is now a state approved civil defense plan but little operational activity. There has been, however, activity at the county level in some counties where the county medical society has plans for assistance in minor disasters.

#### Massachusetts

In Massachusetts, it was reported, the civil defense situation is one of confusion and little activity. This was partially attributed to a lack of funds. At the medical civil defense level the existing organization is confined to the hospital staff with the Massachusetts Medical Society being reported as apathetic in the civil defense field. However, the representative of the Woman's Auxiliary to the Society reported that the Auxiliary was quite active in civil defense affairs, particularly in assisting in setting up civil defense plans for schools and nursing groups. In addition, members of the Auxiliary have spoken on civil defense before civic groups and participated in radio programs.

#### Maine

While the state of Maine has a detailed civil defense plan, it has not, as yet, been approved by the governor. However, the Maine Medical Association has a detailed and active civil defense. Cooperation and co-ordination between the Association, Maine health services, and the hospitals was reported as excellent. The participation by physicians in civil defense activities, it was emphasized, must be continually stressed. The Woman's Auxiliary to the Maine Medical Association is also quite active in civil defense affairs. This activity is mainly with the "Grandma's Pantry" and "Grandma's Treasure Chest" projects.

#### Vermont

In Vermont, the civil defense organization is largely under the state health department, it was reported. Most of the physicians in the health department are also active in the state medical society which is about to come forth with a good civil defense plan. The society has worked in co-operation with the Red Cross in disaster planning and has conducted paper and actual tests of the 200-bed civil defense emergency hospital. Again, the main problem is getting people interested. It was thought that this could be accomplished, at least to some extent, by central guidance, standing operating procedures, and standard terminology. thought was advanced that regional rather than state planning is needed for effective civil defense. It was also suggested that the people's interest in continued on page 646

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COLDS SINUSITIS ALLERGIC RHINITIS civil defense could be fostered by stressing that civil defense was not so much preparation to survive but preparation which could possibly deter aggression. Once people are sold on civil defense, pressure on the federal government would be greater and more effective and thus the federal guidance and support that is needed could be achieved.

Mrs. Stephens Reports for Auxiliary

The Eastern Regional Chairman of Civil Defense for the Woman's Auxiliary to the A.M.A. reported that the auxiliaries in the eastern region are very active in civil defense affairs. For example, in Rhode Island the auxiliary made 500 blankets for storage throughout the state. In Maine, the "Grandma's Treasure Chest" and "Grandma's Pantry" projects are actively supported. In several states, home nursing courses have been presented via television and auxiliary members have participated in panel discussions on civil defense at civic functions.

The A.M.A. Commission on a National Emergency Medical Care Plan

Dr. Earle Standlee, staff director of the A.M.A. Commission on a National Emergency Medical Care Plan, outlined the functions and some of the activities of the Commission. Under the terms of a contract with the office of Civil and Defense Mobilization (formally FCDA) the A.M.A. is to study, develop, and recommend the planning, training, and operational organization needed as a basis for a national plan for the treatment and care of casualties and noncasualties prior to, during and after a hypothetical 20 megaton ground burst thermonuclear attack upon a selected geographical area or areas in the United States. To facilitate work on this project, the Association created the above named Commission.

The Commission in its final report to OCDM which, under the terms of the contract, is due on

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November 26, 1958 shall: (1) furnish advice and recommendations for an organizational plan which will result in the optimum care to the nation in the event of enemy attack; (2) study and develop recommendations for the utilization of professional and nonprofessional personnel of the medical and related professions in a post-attack period to carry out the medical care plan above; (3) outline the basic role and emergency medical responsibilities of the medical profession in the immediate preattack and post-attack period; (4) outline those functions and responsibilities of the medical profession that may be properly delegated and performed by paramedical personnel under the general direction of the medical profession; (5) furnish advice and recommendations as to the training and education that is needed by all health personnel, professional and nonprofessional, so that they may be prepared for operational capability in the event of enemy attack; and (6) furnish advice and recommendations as to the post-attack sorting of casualties.

Dr. Standlee reported that the work of the Commission in accomplishing its tasks has been divided into four phases: Phase 1-fact-finding and datagathering; Phase 2—analysis of data and findings; Phase 3—development of a tentative generalized plan outline; and Phase 4—submission of conclusions and recommendations to the A.M.A. Council on National Defense for submission to the Association Board of Trustees. Phases 1 and 2 of the work of the Commission have been completed and it is anticipated that Phases 3 and 4 will be completed within the time limit set forth in the contract. To facilitate its work, the Commission organized three task forces. These task forces considered the problems of (1) organization; (2) personnel training and utilization; and (3) emergency medical care.

Dr. Standlee pointed out that the Commission's concept of civil defense was not the limited one which is concerned mainly with rescue operations and services to stricken populations. Rather, the Commission's broad concept of civil defense embraces the whole complex of nonmilitary activities necessary to prepare and mobilize the nation's economy against possible war; to survive and emerge from the ashes of attack; to maintain the continuity of government and essential production; and to proceed toward partial recovery and then toward full resumption of peace-time pursuits.

Operation Alert — 1958

Dr. Jacob H. Landes, Regional Medical Officer of OCDM Region I, reported on the Medical and Public Health Problems in *Operation Alert 1958*. There are three phases in *Operation Alert 1958*: The attack phase on May 6 and 7, 1958, when the emphasis was on the state and local level, the fed-

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eral action phase on July 14-18 with emphasis at the federal level, both national and regional, and the evaluation phase with emphasis at the national level, scheduled for September 1958. Dr. Landes' report was limited to the regional medical and public health problems associated with the first two phases of the exercise.

As of D+1, it was estimated that approximately 7 million persons of the 29 million in the region were killed. In addition, there were approximately 5 million displaced persons. Dr. Landes summarized the ability of OCDM Region I, covering the New England states, New York and New Jersey, to meet resource requirements, including medical supplies and equipment and personnel needs of the states and political subdivisions. In this regard, it was noted that OCDM stockpiles of health and medical supplies of four warehouses in the region, which were under the control of the regional director, were preallocated to the states on the basis of target areas population. Thus, these items were considered a part of state resources in computing available resources following the attack. The requirements of medical supplies, personnel, and hospital funds were so tremendous that they could not possibly be met from resources within the region. Notwithstanding the use of substitutes and other means of assistance, the shortage of medical supplies and equipment was critical.

It was of particular interest that while the surviving professional staff might be adequate to treat the noncasualty population, medical personnel to treat the injured was lacking. The only personnel resource in the medical care program was the lay public. Therefore, training programs for self-help were immediately organized. Within the region, there were about 345 200-bed civil defense emergency hospitals.

#### Use of Fire Departments Stressed

Dr. Hungate of Kansas City, Missouri, a member of the A.M.A. Council on National Defense and its Committee on Civil Defense, discussed the utilization of fire stations as a segment of the civil defense organization. Dr. Hungate suggested that the fire station facilities can be used in the conduct of training courses in preparation for disaster and, when disaster strikes, can be used as a rendezvous point for a medical civil defense unit.

In the conduct of courses designed to teach people how to help themselves, their families and neighbors in times of disaster, members of the local fire department can be utilized as instructors in that they have the necessary knowledge to impart and are not busy all of the time that they are on duty. Such instruction could include methods of tying casualties on stretchers or ladders, how to get out of a burning or collapsed building, how to concluded on page 655

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...in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only 3/3 that of prednisone1... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as markedly improved<sup>2</sup>...absence of serious side effects specifically noted.<sup>1,2,3</sup>

...in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients4...6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).5

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...in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.6... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.7

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...in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome. 8,9... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone. 10,11,12... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.13

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about 1/3 in rheumatoid arthritis, by 1/3 in allergic rhinitis and bronchial asthma, and by 1/3 to 1/2 in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

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#### HOUSE OF DELEGATES

continued from page 640

#### Chapin Hospital Report

The special committee authorized by the House of Delegates completed its preliminary work during the summer with the submission of a study report by Doctor Ingalls of Boston. This report was viewed by the Council and approved for public release. Doctor Hamlin will report further to you at this meeting.

#### Interim Meeting

The Committee on Scientific Work has planned a fine Interim Meeting to be held at Newport on Wednesday, October 8. The scientific program is to be presented by members of the medical staff of the U.S. Naval Hospital, and I look to the Delegates to encourage strong support of the meeting by the membership of the Society.

#### Medicare Program

The Medicare Program underwent drastic changes at the hands of the Congress this summer, and an informative report on the new regulations is sent to the House at this time, and it will also be published in the Medical Journal this month.

#### Surgical Fee Study Committee

The surgical fee study committee completed its



assignment in the summer and the schedule was turned over to the actuaries of Physicians Service. A report will be made directly to the House.

FRANCIS B. SARGENT, M.D., President

#### BENEVOLENCE FUND

The Benevolence Fund of the Society started the year 1958 with a cash balance of \$3,091.24.

Mainly as the result of the action of several of the district medical societies in urging their members to make at least a \$5 contribution to the fund annually, \$2,467 has been realized from physician contributions so far this year.

The trustees also acknowledge with appreciation the contribution of \$300 from the Women's Auxiliary to the Society.

These contributions, plus \$57.17 interest on the funds deposited in a savings account of the Industrial National Bank, represent an accumulated fund of \$5,915.41.

Payments in the amount of \$500 have been made so far in 1958 to aid physicians and their families.

The fund now has a cash balance on hand in the Savings Department of the Industrial National Bank of \$5,415.41.

The trustees urge that the District Medical Societies encourage their members to make contributions, which are tax deductible, to the fund at any time during the year. It is also the hope of the trustees that the District Societies will consider an appeal annually for the fund, possibly at the time that members are assessed annual dues.

Respectfully submitted,

Trustees, Benevolence Fund

DAVID FREEDMAN, M.D.

GEORGE W. WATERMAN, M.D.

HENRY J. HANLEY, M.D.

#### CANCER COMMITTEE

A teaching program on cancer for general practitioners will be held on October 19 and 26, 1958, in Peters House, Rhode Island Hospital. It is under

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the sponsorship of the Rhode Island Medical Society, American Academy of General Practice, Rhode Island Division of American Cancer Society and the Rhode Island Hospital. The Cancer Committee has worked in close co-operation with representatives from the sponsoring organizations. An editorial describing the program shall appear in the September issue of the Rhode Island Medical JOURNAL. Attached is a copy of the program. This teaching exercise will be given to a group of twenty invited general practitioners, doctors who have indicated an interest in this program. The cost of the teaching exercise will be small. It is hoped that it will be borne by the registration fee of \$10. If any deficit occurs, possibly \$20-\$50, we might ask the Medical Society to defray this expense.

The Annual Cancer Conference sponsored by the Rhode Island Medical Society shall be held in March, 1959. A panel of specialists from the Roswell Park Memorial Hospital shall present the program. The tentative program is as follows:

Dr. Walter Murphy—Radiotherapy in Cancer Dr. John Graham—Some Aspects of Neoplasms of the Genital Tract

Dr. James Holland—Cancer Chemotherapy
Dr. James Grace—Immunological Aspects of
Cancer and Cancer of the
Gastrointestinal Tract

HERBERT FANGER, M.D., Chairman

#### CHAPIN HOSPITAL STUDY COMMITTEE

The Committee appointed to study and report on all aspects of Chapin Hospital has completed its assignment. Because of the complexities of the problem, expert opinion was sought and fortunately obtained through Dr. John Snyder, dean of the Harvard School of Public Health. After due consideration an independent survey was undertaken by Dr. Theodore H. Ingalls, associate professor of epidemiology, through support of a grant from the Rhode Island Foundation.

Circulation of Dr. Ingalls' report was regarded as urgent by city and state health and government officials. Approval for its release was obtained through the president and council of the Rhode Island Medical Society. The principal findings of the survey were published in the Providence Evening Bulletin on August 11, 1958.

Dr. Ingalls summarizes his report\* as follows: The four major problems that confront the consultant asked to advise about future activities at Chapin Hospital are:

1. Whether or not to continue the Infectious Disease Service?

continued on next page

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<sup>\*</sup>The complete report of Dr. Ingalls is on file at the office of the Secretary of the Society.

- 2. What use should be made of space and facilities released by medical advances of the past 25 years?
- 3. What should be the respective roles of state and city government in the operation of Chapin Hospital?
- 4. How can indicated changes in function be brought about economically?

The solutions to these problems lie, in my opinion, in the following four decisions:

- To continue, but on a consolidated level (in the Richardson and East Wings), contagious disease services as well as pediatric services for allied conditions — nephritis, nephrosis, pneumonia, meningitis.
- To utilize the North, West, and Hindle units respectively for mental problems, geriatric disorders and chronic conditions of infancy and childhood.
- 3. To effect a closer working relation between city and state agencies in order to co-ordinate their respective health-hospital center functions effectively and economically. The North building might be taken over to mutual advantage by the State and become part of an expanded Service in mental health at Chapin. For this purpose I would envisage making the northwest corner section available for the construction of new facilities. The south central area, on the other hand, contains valuable property that could be used to house a new and imperatively needed city health center. For such kinds of construction federal funds are available. Further study and planning is indicated.
  - 4. By using the West unit for geriatric disorders no added investment would be needed and the medical expenses of indigent patients would be compensable through state and federal funds. An attractive service in a well ordered ward would appeal not only to patients eligible for public assistance but also private patients. The additional income (probably well over \$100,000) from this source; the additional income (perhaps \$30,000) to be expected following the decision of the Blue Cross to honor claims of policy holders hospitalized for mental illness in a general hospital; and the appropriate allocation to the State of costs non-residents of Providence hospitalized for neuropsychiatric disorders should result in something approaching a balanced budget. Further study of costs and budgetary items is indicated.

The Committee acknowledges the assistance of many individuals, notably city and state health

officers, administrators of Chapin and other Providence hospitals, members of the R. I. Medical Society Committee on Mental Health and other interested physicians.

Respectfully submitted, HANNIBAL HAMLIN, M.D. Chairman, R. I. Medical Society Committee on Chapin Hospital

#### COMMITTEE ON DIABETES

The annual Diabetes Detection Campaign is scheduled for the week of November 16 to 22. The Society's committee plans to support the national educational publicity of the American Diabetes Association as in past years, and it again looks to every member of the Rhode Island Medical Society to test all patients who may visit his office during the detection week in particular, and to send a report to the committee at the conclusion of the campaign week.

This year the state Department of Health is acquiring a Clinitron for permanent use in Rhode Island. It is the hope of the Health Department that this machine may be used at public gatherings, at schools, and at industrial plants for blood testing for diabetes detection. When any positive case is found the findings will be sent only to the person's family physician by the Health Department.

The Committee requests that the House of Delegates approve of this new phase of the detection program, and that it also approve of the procedure whereby the Health Department may check with the family physician to see if the detected person has consulted the doctor. If he has not, a public health nurse will visit the family and urge that medical supervision be undertaken. Adoption of this plan of procedure would be similar to that now carried out relative to positive Wasserman tests.

The Committee believes that this testing method operated on a year-round basis will be productive of a more effective screening and followup of diabetic cases.

D. RICHARD BARONIAN, M.D., Chairman

#### MATERNAL HEALTH COMMITTEE

To date this year, this committee has held two meetings. The first was held on January 28, 1958, and at this time the maternal deaths in the state for the year 1957 were reviewed. There were fifteen deaths which was an increase over the previous year when we had only ten. We used the new American Medical Association "Guide for Maternal Death Studies" and classified the cases accordingly. A maternal death is defined as the death of any woman dying of any cause whatsoever when pregnant or within ninety days of the termination of the pregnancy.

#### NOVEMBER, 1958

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The first group were *Direct Obstetric Deaths*. These are defined as "deaths resulting from complications of pregnancy from intervention elected or required by pregnancy, or resulting from the chain of events initiated by the complication or the intervention." All cases were also classified as preventable or non-preventable. Under this category were the following:

- Spontaneous rupture of the uterus—Nonpreventable
- 2. Traumatic rupture of uterus—Preventable
- Placenta previa with postpartum hemorrhage
   —Non-preventable
- Incomplete abortion—Preventable—Patient responsible
- Self induced abortion—Preventable—Patient responsible

The second group were *Indirect Obstetric Deaths*. These are "death resulting from disease before or developing during pregnancy which are aggravated by the physiological effects of the pregnancy. In this group were the following cases:

- 1. Bronchopneumonia—Non-preventable
- 2. Lobar pneumonia-Non-preventable
- 3. Rheumatic heart disease with cardiac failure
  —Preventable—Patient responsible
- Rheumatic heart disease with cardiac failure
   —Non-preventable

- Rheumatic heart disease with bacterial endocarditis—Non-preventable
- 6. Myasthenia gravis-Non-preventable
- Thrombosis of right subclavian vein—Nonpreventable

The third group were *Non-related Maternal Deaths*, and there were three of these with the causes of death as follows:

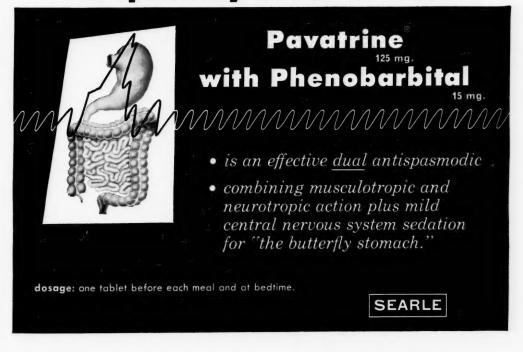
- 1. Generalized abdominal carcinomatosis
- 2. Acute ascending myelitis
- 3. Suicide

The obstetric death rate is the ratio of the number of direct obstetric deaths per ten thousand births over a period of twelve months. The national average is 3.8 per 10,000. We had 19,685 births in the state in 1957. With five direct obstetric deaths, our obstetric death rate was 2.5 per 10,000. Three of the five deaths were preventable and two of these were abortions and with the patient responsible.

A second meeting was held on August 19, 1958. At this meeting the deaths for the first six months of 1958 were reviewed and classified. These will be reported in January, 1959, when we will have the complete year's statistics to evaluate. It is hoped that in another year we may be able to prepare a confidential bulletin which will include three years' statistics comparable to the one that the committee

continued on next page

## in spasticity of the GI tract



published in 1954. The committee feels that they learn a great deal from the discussion of these cases and would like to have others who are interested have the opportunity to read the reports. It was voted at our last meeting that we send a report of our recommendations to the obstetrician in charge and to the hospital in all cases of preventable direct obstetric deaths.

Attendance at our committee meetings is improving. All hospitals except two were represented at our last meeting. We plan in the future to have at least two or three meetings a year, and it is hoped that we will be able to study and discuss other problems of maternal health as well as the maternal deaths.

STANLEY D. DAVIES, M.D., Chairman

#### COMMITTEE ON HIGHWAY SAFETY

The Committee on Highway Safety has been concerned with studying and supporting proper legislation relative to the chemical testing of drivers accused of operating under the influence of liquor. During the past two years, the Committee has worked closely with the Governor's Council on Highway Safety in order to assure proper safeguards in any chemical testing which might become law. The Committee has expressed itself on a number of occasions as being in favor of chemical testing legislation. The Committee is aware that 62 per cent of drivers tested in the State of Rhode Island who die in fatal collisions have significant amounts of alcohol in their blood. The Committee regards this as the most pressing problem concerning the medical aspects of highway safety.

The Highway Safety Committee of the Society has taken no stand on the reporting or handling of those operators who suffer from various diseases and physical defects. The Committee feels that sufficient data is not available on heart diseases of various types, epilepsy, mental illness and other conditions which may contribute to unsafe operation of a motor vehicle. Some members of the Highway Safety Committee of the Society also serve on the Medical Advisory Committee to the Registrar of Motor Vehicles. This is not a committee of the Society and has no connection with the Society. The function of this committee is to review cases submitted to it by the registrar of Motor Vehicles for the purpose of rendering a medical opinion to the registrar. The committee does not have the power to grant or suspend the license of any operator since this authority rests with the registrar of Motor Vehicles alone. In essence, this Advisory Committee insists that sufficient medical study be made of these drivers referred to the Committee and that the licensee or applicant be followed up by his own physician. This Advisory Committee expects the private physician to make a specific recommendation as to whether or not the patient can safely operate a motor vehicle on the public high-

The bulk of the cases submitted for review are patients who have some degree of mental illness. If the committee is assured by a qualified physician that the patient is making a good adjustment in the community and can safely operate a motor vehicle, a recommendation is made to the registrar that the applicant be licensed. A three or six months' follow-up is usually required. The same procedure is followed in diabetics, patients with heart disease and some of the neurological disorders.

The Advisory Committee has no control over what cases are submitted to it. The committee does not examine the patient and the Committee can only rely on the type of information submitted on , behalf of the patient by his physician.

The Highway Safety Committee of the Society again emphasizes that it is a separate and distinct body from the Medical Advisory Committee to the Registrar of Motor Vehicles.

ARTHUR E. O'DEA, M.D., Chairman

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#### COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health is appreciative of the opportunity the House of Delegates affords of listening to considerations of the various committees and the action that it may take on those considerations with the wisdom of its consensus.

Mental health, the Committee believes, pertains to a relationship between many variables. Mental health is a dynamic concept subject to change through its connections with time.

The understanding of mental health is best approached by way of attitude. Attitude has reference to the unity or harmony of the self, mind and feelings of the human being in relationship to the living world roundabout him. Attitudes vary as to the range of their scope. The greater the dimension of the scope of the attitude the more the status of mental health is approached.

The biological aspect of human beings is a most significant factor in both promoting and limiting the movement toward mental health. The profession of medicine is, by training and by the facts of its daily activities, best qualified for leadership in teaching human beings how to function in relationship to variables.

The above considerations reflect the developing thinking of this Committee. Out of this thinking has flowed the following course of action:

A human being who has been tagged with the designation of "mental ill-health" has been presumed automatically to be unable to function in relationship to variables. An attitude of greater dimensions more truthfully states that the men-

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tally troubled person may in many regards retain his usefulness in relating to variables. Some troubled people can function well in the action of driving an automobile. The Committee on Mental Health believes society would express the concept of Mental Health more meaningfully if it were more discerning and less arbitrary in the licensing for driving a motor vehicle.

At the meeting of this Committee on September 11, 1958, it was decided to present the following resolution for action by the House of Delegates:

Resolved: That the House of Delegates advise the Highway Safety Committee to approach the objectives of reducing automobile accidents through consideration of the psychological and psychiatric aspects from the perspective of the whole picture.

This is much more desirable than the present traditional approach of singling out those people admitted to the mental hospital and those people indicating treatment for mental illness on the application for a license to drive a motor vehicle. It is not valid to automatically assume that such people are incapable of functioning as safe drivers.

HAROLD W. WILLIAMS, M.D., Chairman

#### CIVIL DEFENSE PLANNING

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tie basic knots and other emergency measures. In addition, the fire station and the fire department employees can be used in the conduct of first-aid courses as well as survival courses covering weapons, evacuation, family plan, panic, radiation and fallout, shelters, emergency food, water purification, waste disposal and emergency action to save lives

In times of disaster, of course, the fire department employees will be occupied with the duties for which they have been trained. However, the fire station can then be the headquarters of a field disaster unit.

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